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EXAMINER HENNING, MATTHEW T				
ART UNIT		PAPER NUMBER		
2131				

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/888,316

Applicant(s)

VOLPERT, THOMAS R.

Examiner

Matthew T. Henning

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-10 and 21-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-10 and 21-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

1 This action is in response to the communication filed on 8/4/2005.

2 **DETAILED ACTION**

3 ***Response to Arguments***

4 Applicant's arguments with respect to claims 1-3, 5-10, and 21-61 have been considered  
5 but are moot in view of the new ground(s) of rejection.

6 Claims 1-3, 5-10, and 21-61 have been examined. Claims 4, and 11-20 have been  
7 cancelled.

8 All objections and rejections not set forth below have been withdrawn.

9 ***Specification***

10 The specification is objected to as failing to provide proper antecedent basis for the  
11 claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the  
12 following is required:

13 Claims 34 and 48 recite the limitation "generating a control code via a random number  
14 generator and employing the order associated with the control code to generate the position  
15 code".

16 See the rejection of these claims under 35 USC 112 First Paragraph, for further  
17 explanation.

18 ***Claim Rejections - 35 USC § 101***

19 35 U.S.C. 101 reads as follows:

20 Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or  
21 any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and  
22 requirements of this title.

23  
24 Claims 1-3, 5-10, and 47-61 are rejected under 35 U.S.C. 101 because the claimed  
25 invention is directed to non-statutory subject matter. The claims are directed towards a process

Art Unit: 2131

1 of manipulating data. See MPEP § 2106.IV.B.1 There is no reference to any statutory subject  
2 matter in the claims and instead the claims merely disclose the acts of representing data in a  
3 different form. This is evidenced by the examples on pages 15-17 of the specification. As such,  
4 claims 1-3, 5-10, and 47-61 are rejected for failing to be directed towards statutory subject matter  
5 as required by 35 USC 101.

6 ***Claim Rejections - 35 USC § 112***

7 The following is a quotation of the first paragraph of 35 U.S.C. 112:

8 The specification shall contain a written description of the invention, and of the manner and process of making  
9 and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or  
10 with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the  
11 inventor of carrying out his invention.  
12

13 Claims 34 and 48 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply  
14 with the written description requirement. The claim(s) contains subject matter which was not  
15 described in the specification in such a way as to reasonably convey to one skilled in the relevant  
16 art that the inventor(s), at the time the application was filed, had possession of the claimed  
17 invention.

18 Regarding claims 34 and 48, the limitation “generating a control code via a random  
19 number generator and employing the order associated with the control code to generate the  
20 position code” is not supported by the specification. Although there was disclosure that the  
21 control code could be generated in a random fashion, there was no description of using the order  
22 associated with the randomly generated control code to generate the position code (See  
23 Specification Page 18 Paragraph 3), but instead the specification discloses determining an order  
24 and then determining a control code based on the order. As such, it is unclear whether applicant  
25 had possession of the invention in which the order was generated via a random number

Art Unit: 2131

1 generator. Therefore, claims 34, and 48 are rejected for failing to meet the written description  
2 requirement of 35 USC 112 1<sup>st</sup> Paragraph.

3 ***Claim Rejections - 35 USC § 102***

4 The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the  
5 basis for the rejections under this section made in this Office action:

6 *A person shall be entitled to a patent unless –*

7 *(b) the invention was patented or described in a printed publication in this or a foreign*  
8 *country or in public use or on sale in this country, more than one year prior to the date of*  
9 *application for patent in the United States.*

10  
11 Claims 1-3, 5, 8-10, 21-26, 29-33, 35-40, 44-47, 49-55, and 29-61 are rejected under 35  
12 U.S.C. 102(b) as being anticipated by De Maine et al. (US Patent Number 3,656,178) hereinafter  
13 referred to as De Maine.

14 Regarding claim 1, De Maine disclosed a method for encrypting an input data string  
15 comprising a plurality of bits of binary data, the method comprising: determining an order in  
16 which to query the presence of each of 2<sup>n</sup> different configurations of n bits within an input data  
17 string (See De Maine Col. 91 Lines 67-74, 256 Byte Table); generating a control code associated  
18 with the determined order (See De Maine Col. 92 Lines 5-10, Type 2 codes); generating a  
19 position code by identifying the positions of each of the 2<sup>n</sup> different configurations of n bits in an  
20 input data string in accordance with the determined order (See De Maine Col. 92 Lines 31-39,  
21 Bit Map); and combining the control code and the position code to form an encrypted data string  
22 (See De Maine Col. 92 Lines 40-44).

1           Regarding claim 21, De Maine disclosed a method for encrypting an input data string  
2 comprising a plurality of bits of binary data (See De Maine Col. 2 Paragraph 1), the method  
3 comprising: using a software program code means embodied on a computer readable medium,  
4 determining an order in which to query the presence of each of  $2^n$  different configurations of  $n$   
5 bits within an input data string (See De Maine Col. 91 Lines 67-74, 256 Byte Table); using a  
6 software program code means embodied on a computer readable medium, generating a control  
7 code associated with the determined order (See De Maine Col. 92 Lines 5-10, Type 2 codes);  
8 using a software program code means embodied on a computer readable medium, generating a  
9 position code by identifying the positions of each of the  $2^n$  different configurations of  $n$  bits in an  
10 input data string in accordance with the determined order (See De Maine Col. 92 Lines 31-39,  
11 Bit Map); and using a software program code means embodied on a computer readable medium,  
12 combining the control code and the position code to form an encrypted data string (See De  
13 Maine Col. 92 Lines 40-44).

14           Regarding claim 23, De Maine disclosed a computer usable medium storing a computer  
15 program for encrypting an input data string comprising a plurality of bits of binary data (See De  
16 Maine Col. 2 Paragraph 1), the method comprising: computer readable code for determining an  
17 order in which to query the presence of each of  $2^n$  different configurations of  $n$  bits within an  
18 input data string (See De Maine Col. 91 Lines 67-74, 256 Byte Table); computer readable code  
19 for generating a control code associated with the determined order (See De Maine Col. 92 Lines  
20 5-10, Type 2 codes); computer readable code for generating a position code by identifying the  
21 positions of each of the  $2^n$  different configurations of  $n$  bits in an input data string in accordance  
22 with the determined order (See De Maine Col. 92 Lines 31-39, Bit Map); and computer readable

1 code for combining the control code and the position code to form an encrypted data string (See  
2 De Maine Col. 92 Lines 40-44).

3 Regarding claims 2 and 24, De Maine disclosed determining an order comprises generating a  
4 control code in response to a control code index (See De Maine Col. 91 Lines 67-74, 256 Byte  
5 Table).

6 Regarding claims 3 and 25, De Maine disclosed determining an order comprises selecting  
7 a predetermined order (See De Maine Col. 91, 256 Byte Table).

8 Regarding claims 5, 22, and 26, De Maine disclosed dividing the input data string into a  
9 plurality of blocks of data (See De Maine Col. 92 Lines 31-38).

10 Regarding claim 8, and 30, De Maine disclosed generating a plurality of block codes  
11 associated with a plurality of blocks of data, each block code indicating the number of bits within  
12 the associated block of data (See De Maine Col. 101 Lines 45-52).

13 Regarding claim 9, and 31, De Maine disclosed combining the each of the plurality of  
14 block codes with the control code and the position code for the associated block of data (See De  
15 Maine Col. 101 Lines 45-52).

16 Regarding claim 10, and 32, De Maine disclosed that determining an order comprises  
17 determining an order based on the frequencies of the  $2^n$  combinations of the  $n$  bits of the input  
18 data string (See De Maine Col. 101 Lines 20-25).

Art Unit: 2131

1       Regarding claims 29, and 50, De Maine disclosed that the computer readable code for  
2       determining an order further comprises computer readable code for determining a first order  
3       associated with a first block of data and determining a second order associated with a second  
4       block of data wherein the first order is different than the second order (See De Maine Col. 91  
5       Lines 67-74).

6       Regarding claim 33, De Maine disclosed that the computer readable code for  
7       determining an order further comprises computer readable code for determining an order in  
8       which to query the presence of each of  $2^n$  different configurations of  $n$  bits based on an analysis  
9       of the input data (See De Maine Col. 91 Lines 67-74).

10       Regarding claims 35, and 49, De Maine disclosed generating the control code based on a  
11       mathematical formula (See De Maine Col. 92 Lines 5-10)

12       Regarding claims 36 and 51, De Maine disclosed determining whether the input data  
13       string can be compressed simultaneously as it is encrypted (See De Maine Col. 101 Lines 20-28).

14       Regarding claims 37 and 52, De Maine disclosed dividing the input data string into  $n$  bit  
15       sequences (See De Maine Col. 91 Lines 67-74); comparing each of the  $2^n$  different  
16       configurations of  $n$  bits with each of the  $n$  bit sequences (See De Maine Col. 91 Lines 67-74);  
17       determining the frequency of each of the  $2^n$  different configurations appearing in the input data  
18       string (See De Maine Col. 91 Lines 67-74); determining whether a specific relationship exists  
19       between values of the frequencies of each of the individual  $2^n$  different configurations appearing  
20       in the input data string wherein the existence of the specific relationship is indicative of the  
21       presence of a characteristic within the input data string and wherein the presence of the



Art Unit: 2131

1 characteristic indicates that the input data string can be compressed simultaneously as it is  
2 encrypted (See De Maine Col. 101 Lines 20-25); selecting a first position code routine associated  
3 with the determined order when the specific relationship exists, the first position code being  
4 operable to encrypt and compress the input data string (See De Maine Col. 101 Lines 20-25 and  
5 Col. 92 Paragraphs 1-2); and selecting a second position code routine associated with the  
6 determined order when the specific relationship does not exist, the second position code being  
7 operable to encrypt the input data string without any compression (See De Maine Col. 101 Lines  
8 20-25 and Col. 92 Paragraphs 1-2).

9       Regarding claims 38 and 53, De Maine disclosed that the determining the order in which  
10 to query the presence of each of  $2^n$  different configurations of  $n$  bits within an input data string  
11 comprises computer readable code for determining the order in which to query the presence of  
12 each of  $2^2$  different configurations of 2 bits within an input data string (See De Maine Col. 91  
13 Lines 47-48).

14       Regarding claims 39 and 54, De Maine disclosed dividing the input data string into  $n$  bit  
15 sequences (See De Maine Col. 91 Lines 67-74); comparing each of the  $2^n$  different configuration  
16 of  $n$  bits with each of the  $n$  bit sequences of the input data string (See De Maine Col. 91 Lines  
17 67-74); determining a first number representative of the number of times the most frequently  
18 occurring  $2^n$  configuration appears in the input string; determining a second number  
19 representative of the number of times the second most frequently occurring  $2^n$  configuration  
20 appears in the input string; determining a third number representative of the number of times the  
21 third most frequently occurring  $2^n$  configuration appears in the input string determining a fourth

1 number representative of the number of times the fourth most frequently occurring 2<sup>n</sup>  
2 configuration appears in the input string (See De Maine Col. 91 Lines 67-74); selecting a first  
3 position code routine associated with the determined order when the first number is greater than  
4 the sum of the third number and the fourth number, the first position code routine being operable  
5 to encrypt and compress the input data string (See De Maine Col. 92 Paragraphs 1-2 and Col.  
6 101 Lines 20-27); and selecting a second position code routine associated with the determined  
7 order when the first number is not greater than the sum of the third number and the fourth  
8 number, the second position code routine being operable to encrypt the input data string without  
9 any compression (See De Maine Col. 92 Paragraphs 1-2 and Col. 101 Lines 20-27).

10       Regarding claims 40 and 55, De Maine disclosed that generating a control code  
11 associated with the determined order, further comprises: generating a first control code  
12 associated with the determined order when the first position code routine is selected; and  
13 generating a second control code associated with the determined order when the second position  
14 code routine is selected wherein the first control code is different than the second control code  
15 (See De Maine Col. 92 Paragraphs 1-2).

16       Regarding claims 44 and 59, De Maine disclosed selecting a default order (See De Maine  
17 Col. 91 Lines 67-74).

18       Regarding claims 45-46 and 60-61, De Maine disclosed determining an order based on  
19 the relative frequencies of the combinations of n bits (See De Maine Col. 91 Lines 67-74).

20       Regarding claim 47, De Maine disclosed determining the order based on an analysis of  
21 the input data string (See De Maine Col. 91 Lines 67-74).

Art Unit: 2131

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

*A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.*

Claims 6-7, and 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Maine as applied to claims 5, and 26 respectively, and further in view of Shimizu et al. (US Patent Number 6,772,343) hereinafter referred to as Shimizu.

De Maine disclosed blocking the input data into block sizes of a certain range (See De Maine Col. 92 Lines 31-38) but failed to disclose determining the size of the blocks randomly or mathematically.

Shimizu teaches that in a block encoding system, generating each block size randomly makes illicit access of the data more difficult and makes the cryptosystem more robust (See Shimizu Col. 5 Lines 9-18). Shimizu further teaches that the random sizes are generated mathematically using a seed (See Shimizu Col. 15 Paragraphs 3-7).

It would have been obvious to the ordinary person skilled in the art at the time of invention to employ the teachings of Shimizu in the invention of De Maine to mathematically generate random block lengths. This would have been obvious because the ordinary person skilled in the art would have been motivated to provide the added security of random block lengths to the compressed data.

1           Claims 34 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over De  
2   Maine.

3           De Maine disclosed generating the control code based on the input string (See De Maine  
4   Col. 91 Lines 67-74), but failed to disclose randomly generating the control code.

5           It was well known in the art at the time of invention that an input to a function could be  
6   random. It therefore would have been obvious to the ordinary person skilled in the art at the time  
7   of invention that when the input was random, the control code generated would also be random  
8   since it was based on the input. This would have been obvious because the ordinary person  
9   skilled in the art would have used what was well known in the art to come to this conclusion.

10          Claims 41-42, and 56-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
11   De Maine as applied to claim 1 above, and further in view of Weiss (US Patent Number  
12   5,479,512).

13          De Maine disclosed compressing input data (See De Maine Cols. 91-92), but failed to  
14   disclose re-encrypting the data after the compression was performed.

15          Weiss teaches that after compression is performed, the compressed data should be  
16   XORed with a key, in small blocks at a time (See Weiss Col. 5 Paragraphs 4-5 and Col. 6  
17   Paragraph 3 and Fig. 3A).

18          It would have been obvious to the ordinary person skilled in the art at the time of  
19   invention to employ the teachings of Weiss in the compression system of De Maine by XORing  
20   the coded data with a key in small blocks at a time. This would have been obvious because the  
21   ordinary person skilled in the art would have been motivated to protect the data from  
22   unauthorized observing.

Claims 41, 43, 56, and 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Maine as applied to claim 1 above, and further in view of Butler et al. (US Patent Number 5,861,887) hereinafter referred to as Butler.

De Maine disclosed compressing input data (See De Maine Cols. 91-92), but failed to disclose re-encrypting the data after compression was performed.

Butler teaches that compression should be repeated as many times as necessary in order to make the data being compressed sufficiently small (See Butler Col. 3 Paragraph 2).

It would have been obvious to the ordinary person skilled in the art at the time of invention to employ the teachings of Butler in the compression system of De Maine by repeating the compression on the coded output as many times as necessary to get the output to be sufficiently small. This would have been obvious because the ordinary person skilled in the art would have been motivated to provide more efficient storage of the audio data.

## Conclusion

Claims 1-3, 5-10, and 21-61 have been rejected.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Remillard (US Patent Number 5,486,826) disclosed compression in which a value is searched for in an input string and then replaced with a representative symbol, and the process was repeated for all possible values.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew T. Henning whose telephone number is (571) 272-3790.


The examiner can normally be reached on M-F 8-4.

Art Unit: 2131

1           If attempts to reach the examiner by telephone are unsuccessful, the examiner's  
2 supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the  
3 organization where this application or proceeding is assigned is 571-273-8300.

4           Information regarding the status of an application may be obtained from the Patent  
5 Application Information Retrieval (PAIR) system. Status information for published applications  
6 may be obtained from either Private PAIR or Public PAIR. Status information for unpublished  
7 applications is available through Private PAIR only. For more information about the PAIR  
8 system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR  
9 system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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12  
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14   
15 Matthew Henning  
16 Assistant Examiner  
17 Art Unit 2131  
18 10/14/2005

  
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